

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

UNITED STATES OF AMERICA)	
)	
)	
Plaintiff,)	Civil Action No. 2:10-cv-13101-BAF-RSW
)	
v.)	Judge Bernard A. Friedman
)	
DTE ENERGY COMPANY, and)	Magistrate Judge R. Steven Whalen
DETROIT EDISON COMPANY)	
)	
)	
Defendants.)	
)	

**PLAINTIFF UNITED STATES' REPLY MEMORANDUM IN SUPPORT OF
MOTION FOR PRELIMINARY INJUNCTION**

EXHIBIT 16

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

UNITED STATES OF AMERICA)
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Plaintiff,)
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v.)
)
DTE ENERGY COMPANY, and)
DETROIT EDISON COMPANY)
)
)
Defendants.)
_____)

**SECOND DECLARATION OF
BRUCE E. BIEWALD**

- (1) My name is Bruce Biewald and I am President of Synapse Energy Economics Inc.

I previously prepared a declaration in this matter. My experience and resume are provided in, and as Attachment A to, that declaration.

- (2) This Second Declaration is prepared to respond to DTE's opposition to Plaintiff's motion for preliminary injunction, including statements in the Declaration of Michael J. King. Mr. King's Declaration is dated November 2, 2010, but was modified on November 4, 2010. I respond here to the modified version.

- (3) Mr. King's summary conclusion is that "Contrary to Mr. Biewald's conclusions, the projected increase in generation arising in the projections presented by the Company is likely the result of system or market assumptions made by the

Company that are unrelated to the project at issue.”¹ In this Second Declaration I will explain why Mr. King’s analysis is flawed and his conclusion is incorrect. In summary, Mr. King focuses on “system assumptions” as potential causes for the increase in Monroe 2 output and refuses to consider the possibility of the obvious cause – the improvement in unit availability. While it is correct that market economics do play a role in the operation of the Monroe 2 unit, the physical characteristics of the unit are extremely important to plant operations, and changes in those operating characteristics can and do lead to changes in unit availability and output. In the case of Detroit Edison’s 2010 PSCR model projection, the net effect of “system and market factors” was to cause an increase in the expected output of Monroe 2, and the improvement in unit availability would be the cause of a *further* increase in unit output.

- (4) In paragraph 41 of Mr. King’s Declaration he comments on a passage from the U.S. Court of Appeals for the Seventh Circuit.² Specifically, Mr. King’s point is as follows:

The key concept in the text is whether or not the increase in the plant’s annual capacity can be expected to yield a proportionately equal increase in its output. As noted above, Monroe 2 is not a plant that runs ‘at or near full capacity’ at all times. In fact, during the baseline period, it had a capacity factor of 72.2% and an EAF of 85.5%. Therefore, it does not satisfy the condition that an increase in annual capacity, such as provided by an increase in availability or EAF, will be expected to yield a proportionately equal increase in its output.

¹ Declaration of Michael J. King ¶ 6, Exhibit 10 to Detroit Edison’s Opposition to Plaintiff’s Motion for Preliminary Injunction, *United States v. DTE Energy Co.*, No. 2:10-cv-13101-BAF-RWS (E.D. Mich. November 4, 2010).

² *United States v. Cinergy Corp.*, 7th Circuit, October 12, 2010.

For this to be the case, one of two conditions would need to be met:

- Either the utilization of availability would need to be constant through time (as evidenced by the utilization factor or operations factor), or
- The unit would need to exhaust or nearly exhaust its availability.³

(5) Mr. King then explains his view that neither of the conditions is satisfied for Monroe 2. His conclusion is that Monroe 2 “had enough availability in the baseline period to accommodate the projected post-project capability factors.”⁴ He observes variation in the utilization factor for Monroe 2 and concludes that “the units [sic] availability is *not* exhausted in any historic period.”⁵ (Emphasis in the original.)

(6) But Mr. King misses the direct relationship between availability and output. He actually states that “...Monroe 2 is a facility whose output *is* determined by market economics.”⁶ (Emphasis in the original). This view completely ignores the role of the generating unit itself. The characteristics of the unit can and generally do have something to do with the amount of generation from the unit. For example, the higher a unit’s forced outage rate, the lower its output will tend to be. I discuss this direct relationship in my initial Declaration, and it is one that is well-understood by electric system modelers and planners. Mr. King is correct that there are “system assumptions” that can have an impact on the operation of a

³ Declaration of Michael J. King ¶ 41..

⁴ *Ibid.*, ¶ 42.

⁵ *Ibid.*, ¶ 42.

⁶ *Ibid.*, ¶ 47.

unit⁷ but these other assumptions alone do not “determine” the output of a generating unit.

- (7) The bulk of Mr. King’s rebuttal to me focuses on these “system or market assumptions.” He chooses to look everywhere for the cause of the increase in Monroe 2 output except to the obvious factor that has a direct impact on the output – the generating unit’s own availability as measured by EAF or ROR.
- (8) Mr. King argues that “[t]here is no reason to presume that the future utilization factor will be the same as the factor that occurred in the past.”⁸ He is correct in that the utilization factor (or UF)⁹ of a generating unit changes over time as a result of various factors. However, utilization factors tend to be reasonably stable, and in the absence of specific reasons to the contrary it is not unreasonable to assume stability. Moreover, in the case of Monroe 2 the Company’s projection made immediately prior to the project was for an *increased* post-project utilization factor.¹⁰

⁷ *Ibid*, ¶ 72.

⁸ *Ibid*, ¶ 36.

⁹ UF, or utilization factor, is a measure of the amount of generation from a unit expressed as a percentage of the “available generation.” EAF, the “equivalent availability factor,” is a measure of unit availability that accounts for planned and forced outages. ROR, the “random outage rate,” is a measure of the amount of “forced” outage experienced at a generating unit.

¹⁰ Mr. King identifies the “fact” that “during the baseline period, Monroe Unit 2 had a capacity factor of 72.2% and an EAF of 85.5%.” (King Declaration, ¶ 39). The utilization factor implied by these two numbers is 84.4%, calculated by dividing the CF by the EAF.

- (9) Specifically, the Company's projected UFs for Monroe 2 in its 2010 Power Supply Cost Recovery filing, shown in Table 1, below, are all higher than the calculated baseline UF of 84.4%.

Table 1. Projected Utilization Factors for Monroe 2.

Year	2010 PSCR
2010	87.8%
2011	89.3%
2012	90.3%
2013	92.4%

- (10) The expected increase in utilization factor for Monroe 2 indicates that even without the project, the Company would have expected Monroe 2 to generate more. With the project, and the associated improvement in unit availability, the increase in expected Monroe 2 generation was even more than it would otherwise have been.
- (11) It is possible to run simulation models, such as PROMOD, in order to estimate the impact of a generating unit forced outage rate improvement upon the operation of the unit. A paper by Le and McCutchan from Volume 26 of The Engineering Economist, states this point clearly:

Several methods are available for evaluating the worth of unit availability. If detailed accuracy is desired, computer simulation should be used. In the simulation approach the system is simulated twice, the first time with a projected forced outage rate of the baseload unit, the second time with an improved outage rate. The difference in the total present worth capital and production costs between the two computer runs

measures the benefits associated with the improved unit reliability. In this paper a more approximate method is used.¹¹

(12) If Mr. King were interested in knowing what portion of the projected increase in Monroe 2 generation were caused by the improvement in projected random outage rate, then he could have run PROMOD as described in the paper quoted above. Instead, Mr. King makes comparisons between model runs done at different points in time, with multiple changes in to the input assumptions. This approach allows for speculation and conjecture about causation, but little illuminating information.

(13) Mr. King actually did have the Company produce one PROMOD run expressly for purposes of his analysis in this case. Specifically, he asked for a variation to the Company's 2009 PROMOD run, removing the impacts of a higher planned outage in 2013 due to a scheduled scrubber installation. The 2009 re-run changed the planned outage factor assumptions to be the same as those used in the 2010 PSCR Run. I believe that a similar amount of time and effort would be required to produce a new PRMOD run of the 2010 PSCR projection, with a modified forced outage rate at Monroe 2. Such a run would directly address one of the key questions raised in the Declarations that Mr. King and I have prepared in this case.

¹¹ Le, K.D. and D.A. McCutchan, *What is the Worth of Baseload Availability?*, The Engineering Economist: A Journal Devoted to the Problems of Capital Investment, 1547-2701, Volume 26, Issue 2, 1980, Pages 137-147.

- (14) If PROMOD runs were done with a change in the unit availability, holding all other inputs constant, then the expected generation from Monroe 2 would change in a predictable manner based upon the utilization factor. For example, the 2010 PROMOD run for the year 2013 had an EAF input of 89.3%,¹² and predicted a capacity factor of 82.5%. This amounts to a utilization factor of 92.4% for the unit. The Company's economic analysis of the economizer project indicated that the "average projected improvement in ROF equals 6.8%."¹³ Without this improvement the EAF in 2013 would have been 82.5% rather than 89.3%. A proper model run with this higher forced outage and lower EAF would have predicted a capacity factor for Monroe 2 of about 76.2%.
- (15) In this example, the net impact of all of the various system and market factors (the things that Mr. King focuses on) would account for the increase from 72.2% capacity factor in the baseline period to about 76.2% in 2013, and the improvement in unit availability would be responsible for the additional increase from 76.2% up to the 82.5% capacity factor actually predicted by the Company.
- (16) Mr. King's comparisons between PROMOD runs done by the Company at different points in time with a variety of different model inputs reflecting the vintage of the run leads to muddled comparisons and is responsible for his inability to reach reasonable conclusions.¹⁴ Mr. King states that he "cannot point

¹² Declaration of Michael J. King ¶ 95.

¹³ Presentation slides by DTE Energy, "Monroe Unit 2 Economizer Replacement, Utility Capital Committee Review," February 2009, Slide 8.

¹⁴ In ¶ 101 of his declaration, King states:

to a single model assumption to explain the increase in projected generation for Monroe 2 in the 2010 PSCR Run as compared to either the 2009 or 2011 PSCR runs.”¹⁵ If Mr. King were interested in understanding the 2010 PSCR Run that the Company performed in the fall of 2009¹⁶ and relied upon by the Company in its March 12, 2010 letter to the Michigan Department of Environmental Quality regarding the planned Monroe 2 outage, then Mr. King could have asked the Company to produce new PROMOD runs, based upon the 2010 PSCR run, with input assumptions modified one at a time. This would have been the logical and straightforward way to understand the impact of particular input assumptions, including the outage rates for Monroe 2, upon the expected output from the facility.

Using the comparison of the 2009 and 2010 PSCR Runs as an example, I have demonstrated the following:

- (1) I **cannot** conclude that an increase in availability (by lowering the ROR) results in an increase in projected generation. The 2009 PSCR Run assumes higher projected availability for Monroe 2 and results in lower projected generation for Monroe 2 as compared to the 2010 PSCR Run.
- (2) I **cannot** conclude that an increase in system demand is the *only* factor that may explain an increase in projected generation. The 2010 PSCR Run assumes a decrease in system demand as compared the 2009 PSCR Run and results in an increase in projected generation for Monroe 2. The demand for any unit is affected by many more factors than overall system demand.
- (3) I **can** conclude that several assumptions, unrelated the project, including projected electricity prices, projected fuel prices, and projected environmental policy and emission allowance costs, are significantly different between the 2009 PSCR Run and the 2010 PSCR Run, and together or individually are the dominant causes of the significantly different projected generation for Monroe 2 from the two runs.

¹⁵ Declaration of Michael J. King ¶ 103, Exhibit 10 to Detroit Edison’s Opposition to Plaintiff’s Motion for Preliminary Injunction, *United States v. DTE Energy Co.*, No. 2:10-cv-13101-BAF-RWS (E.D. Mich. November 4, 2010).

¹⁶ *Ibid*, ¶ 41.

I declare under penalty of perjury that the foregoing is true and correct.

A handwritten signature in black ink, appearing to read "Bruce E. Biewald", written above a horizontal line.

Bruce E. Biewald

Executed on November 17, 2010 in Cambridge, Massachusetts.

APPENDIX A

ADDITIONAL CONSIDERED DOCUMENTS

- (1) Declaration of Ranajit (Ron) Sahu, in this matter.
- (2) Declaration of Robert Koppe, in this matter.
- (3) Declaration of Michael J. King (Original), in this matter.
- (4) Declaration of Michael J. King (Modified), in this matter.
- (5) Le, K.D. and D.A. McCutchan, *What is the Worth of Baseload Availability?*, The Engineering Economist: A Journal Devoted to the Problems of Capital Investment, 1547-2701, Volume 26, Issue 2, 1980, Pages 137-147.
- (6) Presentation slides by DTE Energy, “Monroe Unit 2 Economizer Replacement, Utility Capital Committee Review,” February 2009